Great Basin Naturalist 50(3), 1990, pp. 299–302

CALIFORNIA GULL POPULATIONS NESTING AT GREAT SALT LAKE, UTAH

Don S. Paul[1], Joseph R. Jehl, Jr.[2], and Pamela K. Yochem[2]

Although the California gull (*Larus californicus*) is the state bird of Utah, the history and status of colonies nesting at Great Salt Lake have not been well documented. Stansbury (1852) reported gulls nesting in 1850, and the population has been studied sporadically since then. Behle (1958: 22–32) provided a comprehensive review of the history of the colonies and commented on the reliability of early estimates, many of which were greatly exaggerated. He made the first complete survey in 1931 (Behle 1958: 23), reporting approximately 80,000 adults breeding on the Great Salt Lake islands. Behle (1958: 32) continued to study the population through the 1950s and concluded that

> the only generalization one can make is that there are population shifts constantly going on and there seems to be a movement from the remote colonies of the lake eastward, closer to the foot of the Wasatch Front and closer to the food supply. . . . It is not certainly known whether there has been an actual increase of the total population of gulls for the entire region during late years as some claim. It is my feeling that such is not the case. Rather, by moving their nesting colonies to new locations to the east or at the several refuges, the seagulls are more conspicuous.

Behle (1958: 32) provided several examples of relocations, most notably:

> Hat Island which once supported 20,000 gulls has been completely abandoned and the Gunnison Island population has been reduced from 60,000 to 10,000 or 15,000. In contrast, the Rock Island [Utah Lake] colony increased from a few hundred to 27,850.

Sporadic records and unequal effort make data from 1932 through 1981 difficult to interpret. To gain a better understanding of the current situation, the Utah Department of Natural Resources, Division of Wildlife Resources (DWR), repeated Behle's work by conducting aerial and ground censuses of the colonies in 1982 and 1983 (Paul 1983). Additional surveys were made in 1986, 1987, and 1989 (Paul 1986, 1987, 1989). In all years, the location of the colonies was determined by making an aerial survey of the entire lakeshore and the islands. In 1982 and 1983 a walk-through strip count of active nests and young was the primary method used to determine colony size: in several colonies size was determined by using a spotting scope to count nests or adults; in several others photo transects were made from the airplane. In 1986 and 1987 estimates of the adult population were made using direct nest counts at small colonies; at larger colonies estimates were made by comparing aerial photographs to those made in earlier years; the largest colonies were estimated by Paul using knowledge from past experience of the colony and its size. In 1989 numbers were estimated from aerial surveys on most islands and by strip transects of mainland colonies. Ground counts were made by Paul and Jehl at the large colony at the Morton Salt Company and also on Gunnison Island. DWR also censused colonies at Utah Lake and Neponset Reservoir in 1982 and 1983. For details see Paul (1983, 1986, 1987, 1989).

The results (Table 1) show that in the 1980s gulls nested at 16–20 sites around the lake (Fig. 1), and that at some sites numbers varied from year to year. Most of the changes could be associated with a 10-foot fluctuation in lake levels, which caused the desertion of some colonies and the formation of others; the lake level rose from 4202′ in 1982 to 4211.8′ in 1987, and then receded to 4206.5′ in 1989.

For example, up to 18,000 gulls nested at Antelope Island in the mid–1960s, even though terrestrial predators (badger, fox, coyote) had access to the colony (Paul 1983 and personal observation). No gulls were present in 1982 (the first year of intensive surveys), perhaps because disturbance at a nearby excavation site discouraged nesting. Large numbers (nearly 33,000) returned in 1983, and

[1]Utah Department of Natural Resources, 515 East 5300 South, Ogden, Utah 84405-4599.
[2]Sea World Research Institute, 1700 South Shores Road, San Diego, California 92109

TABLE 1. Numbers of breeding adult California Gulls at Great Salt Lake, Utah, 1982–1989[a]. Data from Utah Department of Wildlife Resources (Paul 1983, 1986, 1987, 1989).

Colony	1982	1983	1986	1987	1989	Remarks
Great Salt Lake						
1. Salt Creek WMA	200	50	50	100	ND[b]	Controlled population
2. Promontory Point	1172	0	0	0	0	Flooded 1983
3. Bear River Refuge	2492	4270	0	0	0	Flooded after 1983; controlled population
4. Perry Sewer Lagoon	0	0	1200	3165	35	Isolated after 1983, connected to mainland 1989
5. GSL Mineral	5356	0	0	NA	4500	Flooded 1983
6. Rocky Island	2037	976	20	20	300	Reduced in size by flooding in 1983, again 1986
7. Ogden Bay						
a. Pintail Flats	8706	2400	0	0	0	Flooded after 1983
b. Unit 1	0	2000	0	0	3592	Flooded after 1983
c. Unit 2	112	0	0	0	0	Flooded after 1982
d. Pasture	0	0	10,000	12,000+	0	Occupied as lake rose
8. Egg Island	3502	1170	0	0	0	Reduced in size in 1983; flooded 1984
9. White Rock	0	492	200	200	200	Area reduced 25% after 1983
10. Antelope Island	0	32,940	34,600	34,000	0	See text
11. Farmington Bay	20	250	0	0	0	Flooded after 1983
a. Turpin Dike	20	0	0	0	0	Flooded in 1983
b. Interior	0	250	0	0	0	Controlled population
12. Morton Salt Co.	9476	9660	9500	9500	43,025	Incorporated Antelope Island colony in 1989
13. Lake Point Salt Co.	2740	7072	0	0	0	Flooded after 1983
14. Hat Island	10,997	9507	9800	9800	12,000	Minor reduction in area
15. Gunnison Island	3032	9450	10,000	10,000	12,700	No change in habitat
16. Locomotive Springs	0	0	1100	225	200	
Subtotal GSL	49,862	80,487	76,470	79,010+	76,552	
Other colonies						
Geneva Steel, Utah Lake	6591	5982	ND	ND	ND	
White Lake	8981	7855	ND	ND	ND	
Neponset Reservoir	3680	4856	ND	ND	ND	
Subtotal others	19,252	18,693	[18,000]	[18,000]	[18,000]	
Grand total	69,114	99,180	94,470	97,010+	94,552	

[a] ± 15%
[b] no data

the colony remained fairly stable until 1989, when it was abandoned for unknown reasons. Concurrently, the Morton Salt colony, which had been stable at about 9500 birds from 1982–1988, increased to over 43,000, presumably by incorporating the Antelope Island birds.

At Ogden Bay, several shoreline nesting areas were inundated by rising water in 1982–83 (Paul, personal observation), causing the gulls to move inland in 1984 to a dike separating waterfowl management units. When the dike was inundated in 1985, the gulls moved farther inland and occupied a pasture (12,000 birds in 1987), which was accessible to mammalian predators. The pasture colony bred successfully through 1988 but was deserted in 1989 when the dike used in 1985 resurfaced and was reoccupied.

Rising water in the early 1980s also isolated the dikes at Perry Sewage Lagoons, allowing a colony to form there in 1984. The colony grew to over 3000 in 1987 and then was virtually abandoned (35 nests) in 1989, after its isolation was destroyed by the falling lake levels (Paul and Jehl, personal observation).

There are several other nesting locations in the vicinity of Great Salt Lake, of which three are at Utah Lake. The Rock Island colony, estimated at 2000 adults in 1932 (by Behle), grew to 27,850 adults in 1942 (Beck 1942). A subsequent rise in lake level in 1944 made the island largely unavailable. At that time a new site developed on a dike at the newly established Geneva Steel plant. Beck estimated its size at 6800 gulls in 1946. In 1979 the DWR estimated 12,320 pairs there; 1982 and 1983 counts were 6591 and 5924 adults, respectively. White Lake (a southern extension of Utah Lake) has been active since at least the 1960s. The DWR estimated 12,124 pairs in 1979; in 1982 and 1983 there were 8981 and 7855 breeding adults, respectively.

In Rich County, east of the Wasatch Range, gulls have nested at Neponset Reservoir since at least the 1960s. Counts in 1982 and 1983 were 3680 and 4856 adults.

The Utah Lake and Neponset Reservoir colonies are still active and currently hold approximately the same numbers as in the early 1980s (Paul, personal observation).

Fig. 1. Outline map of Salt Lake. Numbers refer to locations of California Gull colonies listed in Table 1.

DISCUSSION

The California Gull is a highly adaptable species. Despite a 10-foot fluctuation in lake level, which led to major changes in the availability of breeding sites and in the size of individual colonies in the 1980s, the number of breeding adults at Great Salt Lake has remained essentially constant at about 75,000–80,000 birds through that decade and, apparently, since Behle's 1931 survey. This is surprising, in view of the major population increase this species has undergone in the twentieth century (Conover 1983) and an apparent increase in winter population at Great Salt Lake in recent years (Tove and Fischer 1988). The only apparent anomaly in the number of breeding birds is the drop in 1982, which evidently resulted from the temporary abandonment of Antelope Island. Estimating 18,000 birds at nearby colonies gives a total of ca. 93,000–98,000 breeding adults for the Great Salt Lake region.

ACKNOWLEDGMENTS

This study was supported by the Los Angeles Department of Water and Power. V. Bachman, J. Bich, M. Halpin, W. Kirschke, D. Krueger, S. Manes, C. Marti, R. McKay, M. Miller, D. Peterson, M. Schega, T. Schmidt, D. Shirley, and P. Wood participated in field studies. We thank S. I. Bond and D. McDonald for help in compiling the manuscript and M. Tove and D. Fischer for helpful comments.

LITERATURE CITED

BECK, D. E. 1942. Life history notes on the California Gull. Great Basin Naturalist 3&4: 91–108.

BEHLE, W. H. 1958. The bird life of Great Salt Lake. University of Utah Press, Salt Lake City. 203 pp.

CONOVER, M. R. 1983. Recent changes in Ring-billed and California Gull populations in the western United States. Wilson Bulletin 96: 362–383.

PAUL, D. S. 1983. Current and historical breeding status of the California Gull in the Great Salt Lake region. Unpublished report, Utah Department of Natural Resources. 71 pp.

———. 1986. Notes on the 1986 Great Salt Lake California Gull breeding population. Unpublished report, Utah Department of Fish and Game.

———. 1987. 1987 Great Salt Lake California Gull colony locations and adult breeding population estimates. Unpublished report, Utah Department of Fish and Game.

———. 1989. 1989 Great Salt Lake California Gull colony locations and breeding adult population estimates.

Unpublished report, Utah Department of Fish and Game, Natural Resources.

STANSBURY, H. 1852. Exploration and survey of the valley of the Great Salt Lake of Utah. Lippincott, Grambo and Co., Philadelphia. 487 pp.

TOVE, M. H., AND D. L. FISCHER. 1988. Recent changes in the status of wintering gull populations in Utah. American Birds 42: 82–190.

Received 5 February 1990
Revised 1 August 1990
Accepted 11 August 1990